

WHAT IS CLAIMED IS:

1. An image display apparatus, comprising:  
multiple image-forming devices connected to multiple row lines and column lines and disposed in the form of a matrix;

scanning means connected to the row lines;

modulating means connected to the column lines;

image-forming members severally associated with the image-forming devices and having a nonlinear characteristic with respect to a driving condition of the image-forming devices;

gradation converting means for converting a gradation characteristic of inputted image data in accordance with the characteristic of the image-forming members;

compensated image data computing means for computing compensated image data by compensating the output of the gradation converting means for at least an affect of voltage drop arising due to resistance of the row lines;

amplitude regulating means for applying a gain for regulating the amplitude of the compensated image data so that the amplitude of the compensated image data corresponds with an input range of the modulating means; and

a scene change detecting portion for detecting a change of a scene displayed on the image display apparatus, wherein the gradation converting means performs a gradation conversion corresponding to the gain,

the amplitude regulating means has filtering means for

carrying out different filter processing in accordance with the output of the scene change detecting portion on the gain computed for each frame, and

the modulating means receives the compensated image data amplitude-regulated by the amplitude regulating means as input and outputs a modulating signal to the column lines.

2. An image display apparatus according to claim 1, wherein the filtering means is a low pass filter and weakens the strength of the filter with respect to a predetermined frame immediately after a scene change is detected by the scene change detecting portion.

3. An image display apparatus according to claim 1, wherein the filtering means does not perform filter processing with respect to a predetermined frame immediately after a scene change is detected by the scene change detecting portion and operates as a low pass filter with respect to frames other than the predetermined frame immediately after the scene change is detected.

4. An image display apparatus according to claim 1, wherein the filtering means alters the value of the gain to a preset value with respect to a predetermined frame immediately after a scene change is detected by the scene change detecting portion and operates as a low pass filter with respect to frames other than the predetermined frame immediately after the scene change is detected.

5. An image display apparatus according to claim 1, wherein the filtering means, with respect to a predetermined

frame immediately after a scene change is detected by the scene change detecting portion, alters the value of the gain to a value estimated with reference to an average value of inputted image data of the frame, and with respect to frames other than the predetermined frame immediately after the scene change is detected operates as a low pass filter.

6. An image display apparatus according to claim 2, wherein the predetermined frame is from one frame to five frames immediately after a scene change is detected by the scene change detecting portion.

7. An image display apparatus according to claim 3, wherein the predetermined frame is from one frame to five frames immediately after a scene change is detected by the scene change detecting portion.

8. An image display apparatus according to claim 4, wherein the predetermined frame is from one frame to five frames immediately after a scene change is detected by the scene change detecting portion.

9. An image display apparatus according to claim 5, wherein the predetermined frame is from one frame to five frames immediately after a scene change is detected by the scene change detecting portion.

10. An image display apparatus according to claim 1, wherein the scene change detecting portion has means for computing an average value of inputted image data for each frame and means for calculating a difference in the average value between frames and comparing the absolute value of

this difference with a preset value to determine whether or not there has been a scene change.

11. An image display apparatus according to claim 1, wherein the image-forming devices are electron-emitting devices which emit electrons, the image-forming members are phosphors which emit light when irradiated with electrons emitted from the electron-emitting devices, and the gradation converting means performs conversion on the basis of nonlinear conversion characteristics, differing by color of the inputted image data, obtained from the light emission characteristics of the phosphors.

12. An image display apparatus, comprising:  
multiple image-forming devices connected to multiple row lines and column lines and disposed in the form of a matrix;

scanning means connected to the row lines;

modulating means connected to the column lines;

image-forming members severally associated with the image-forming devices and having a nonlinear characteristic with respect to a driving condition of the image-forming devices;

gradation converting means for converting a gradation characteristic of inputted image data in accordance with the characteristic of the image-forming members;

gain multiplying means for multiplying an output of the gradation converting means by a gain;

compensated image data computing means for computing

compensated image data by compensating the image data gain-multiplied by the gain multiplying means for at least an affect of voltage drop arising due to resistance of the row line;

gain computing means for computing the gain so that the amplitude of the compensated image data corresponds with an input range of the modulating means; and

a scene change detecting portion for detecting a change of a scene displayed on the image display apparatus, wherein the gradation converting means performs a gradation conversion corresponding to the gain,

a filtering means for carrying out different filter processing in accordance with the output of the scene change detecting portion on the gain computed for each frame is provided, and

the modulating means receives the compensated image data amplitude-regulated by the amplitude regulating means as input and outputs a modulating signal to the column lines.

13. An image display apparatus according to claim 12, wherein the filtering means is a low pass filter and weakens the strength of the filter with respect to a predetermined frame immediately after a scene change is detected by the scene change detecting portion.

14. An image display apparatus according to claim 12, wherein the filtering means does not perform filter processing with respect to a predetermined frame immediately after a scene change is detected by the scene change detecting

portion and operates as a low pass filter with respect to frames other than the predetermined frame immediately after the scene change is detected.

15. An image display apparatus according to claim 12, wherein the filtering means alters the value of the gain to a preset value with respect to a predetermined frame immediately after a scene change is detected by the scene change detecting portion and operates as a low pass filter with respect to frames other than the predetermined frame immediately after the scene change is detected.

16. An image display apparatus according to claim 12, wherein the filtering means, with respect to a predetermined frame immediately after a scene change is detected by the scene change detecting portion, alters the value of the gain to a value estimated with reference to an average value of inputted image data of the frame, and with respect to frames other than the predetermined frame immediately after the scene change is detected operates as a low pass filter.

17. An image display apparatus according to claim 13, wherein the predetermined frame is from one frame to five frames immediately after a scene change is detected by the scene change detecting portion.

18. An image display apparatus according to claim 14, wherein the predetermined frame is from one frame to five frames immediately after a scene change is detected by the scene change detecting portion.

19. An image display apparatus according to claim 15,

wherein the predetermined frame is from one frame to five frames immediately after a scene change is detected by the scene change detecting portion.

20. An image display apparatus according to claim 16, wherein the predetermined frame is from one frame to five frames immediately after a scene change is detected by the scene change detecting portion.

21. An image display apparatus according to claim 12, wherein the scene change detecting portion has means for computing an average value of inputted image data for each frame and means for calculating a difference in the average value between frames and comparing the absolute value of this difference with a preset value to determine whether or not there has been a scene change.

22. An image display apparatus according to claim 12, wherein the image-forming devices are electron-emitting devices which emit electrons, the image-forming members are phosphors which emit light when irradiated with electrons emitted from the electron-emitting devices, and the gradation converting means performs conversion on the basis of nonlinear conversion characteristics, differing by color of the inputted image data, obtained from the light emission characteristics of the phosphors.